

Olympic Peninsula Non-Wires Solutions

Combined Program Plan
Proposal

Where

East side, Olympic Peninsula

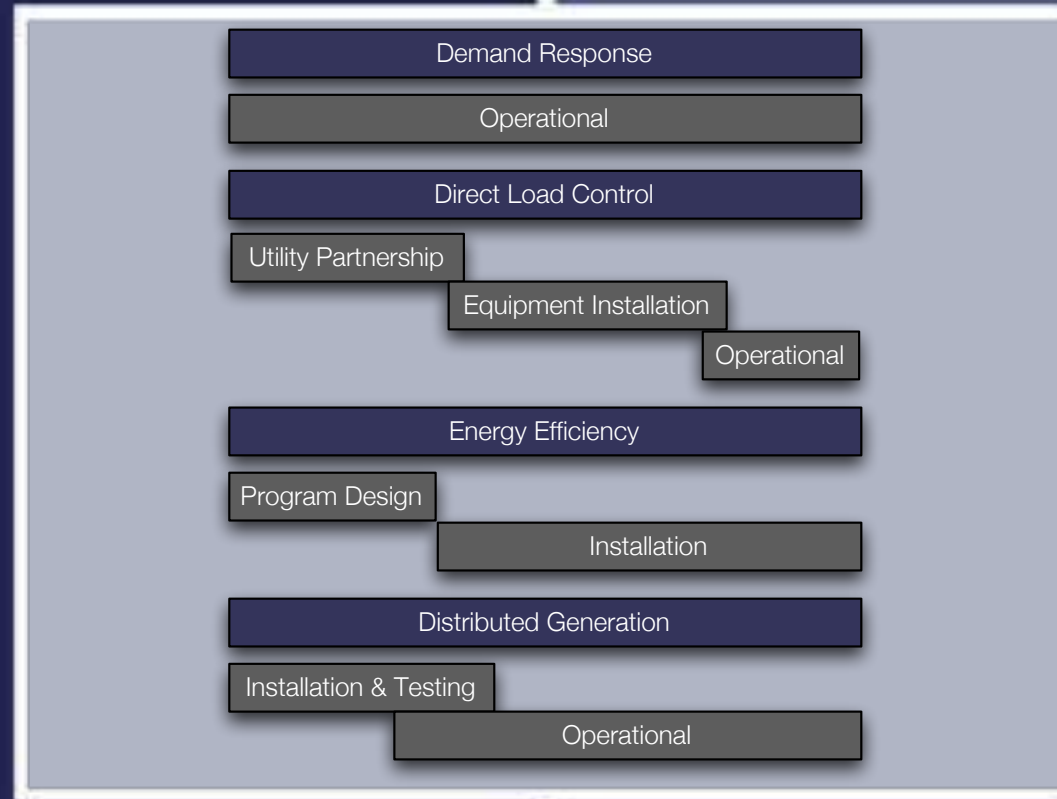
Olympia North to Shelton,
Kitsap Peninsula,
Sequim, Port Townsend,
Port Angeles, Neah Bay,
as far as Forks



Summary

Program	MW	\$000 (TBL)
DR	16	500
DLC	20	3,700
DG	4	800
EE	15	0
Total	55	
TBL Need	50	5,000

- ▶ Alternative capable of at least 5 year deferral
- ▶ Portfolio passes TRC
- ▶ DLC assumes significant local cost share
- ▶ PSE not included



Schedule

Budget (\$000)

Element	PBL	TBL
DR	200	500
DLC	-	3,700
DG	-	800
EE	18,000	-
Total	18,200	5,000
Max TBL \$	////////	6,011

Demand Response Program Plan Proposal

Olympic Peninsula Non-Wires
Solutions



Demand Exchange

Summary

- ▶ Target 4 customers for continued involvement
- ▶ Non-voluntary contract improves reliability
- ▶ Counting on 16MW but maximum potential demand reduction:
 - Morning: 31MW/hr
 - Evening: 66MW/hr
- ▶ Annual Cost: \$100,000

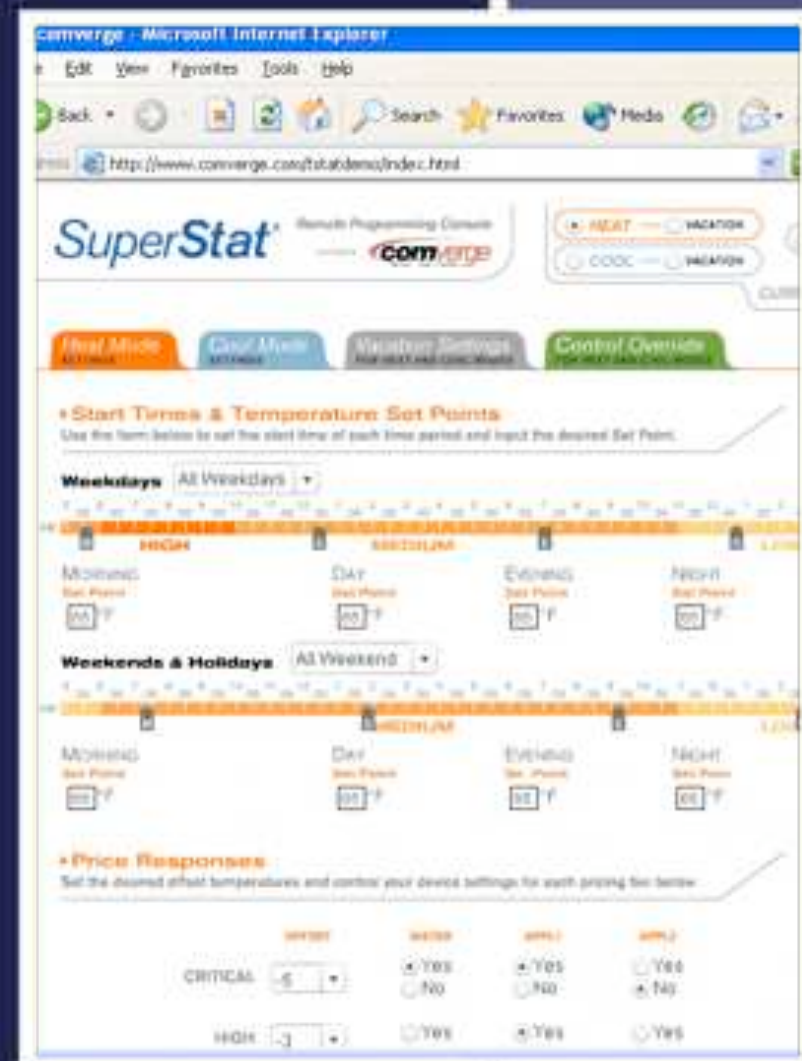
Schedule

- ▶ System operational now
- ▶ Testing operations continues between 2005 and 2009 to prove reliability
- ▶ Reliability proven by 2009 (weather, communications, non-voluntary operations)

Direct Load Control Program Plan Proposal

Olympic Peninsula Non-Wires
Solutions

Water & Space Heat Pre-charging



Summary

- ▶ 155,000 homes on peninsula
- ▶ Expected achievement is 31,000 homes
- ▶ @2kW per home
~62MW control
- ▶ Likely diversity = 20MW reliably
- ▶ Extreme peak - pilot to test feasibility of controlling multiple loads including pre-charging

Schedule

- ▶ Local v. transmission benefit/cost analysis - *March 2005*
- ▶ Utility partnership discussion - *June 2005*
- ▶ Utility partnership negotiation conclusion - *March 2006*

Distributed Generation Program Plan Proposal

Olympic Peninsula Non-Wires
Solutions



Networked Distributed Generation

Summary

- ▶ Target: ~4MW
- ▶ 12 units in 10 locations
- ▶ Annual operating cost
~\$160,000

Schedule

- ▶ Units all currently identified
- ▶ Installation in progress totaling ~4MW
- ▶ Commissioning testing in January & February
- ▶ Initial operations in March

Energy Efficiency Program Plan Proposal

Olympic Peninsula Non-Wires
Solution



Residential, Commercial &
Industrial

Summary

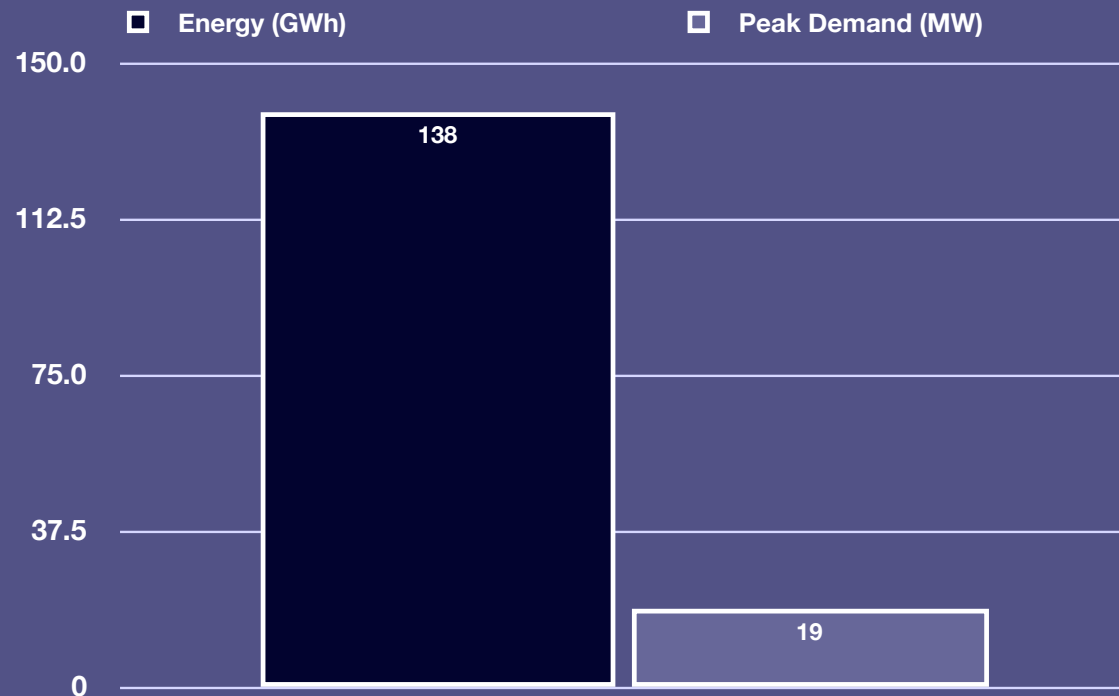
- ▶ Target peak savings measures
- ▶ Capture both peak and energy savings
- ▶ Peak savings after 5 years ~15.4 MW
- ▶ Energy savings after 5 years ~110 GWh

Schedule

- ▶ Utility program partnership discussions
- ▶ Program design
 - Measures
 - Administration
 - Incentives
- ▶ Measurement plan and protocol
- ▶ Implementation

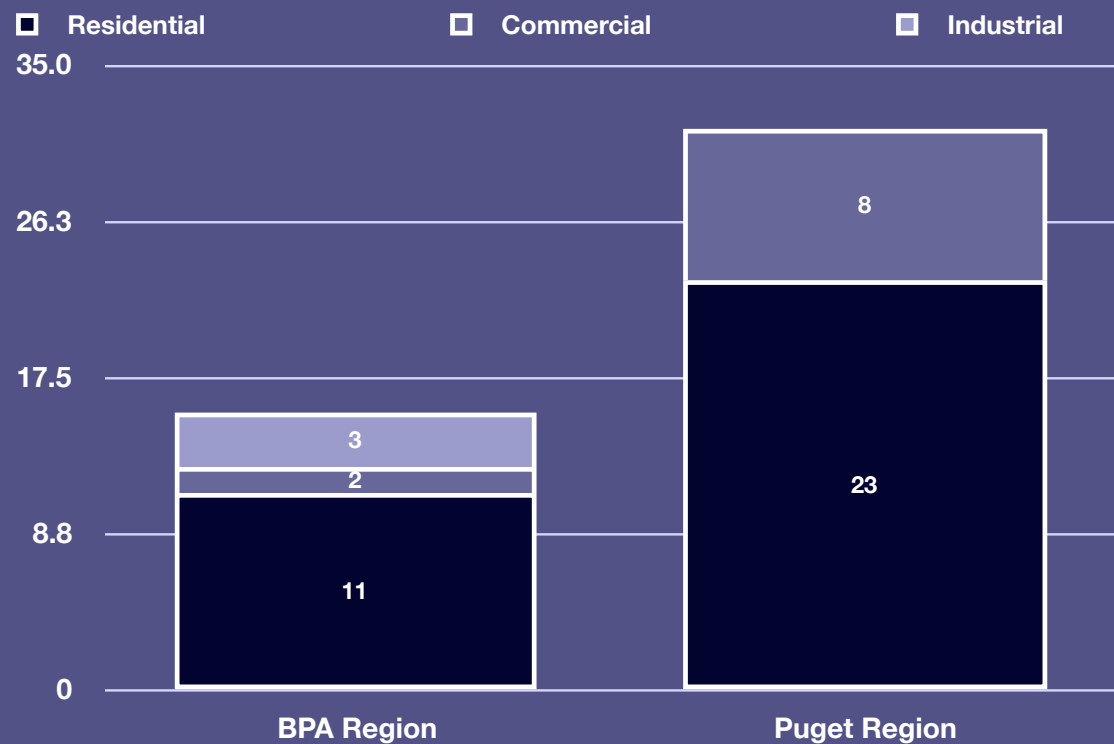
Economic Potential Savings

BPA Region



Energy Efficiency

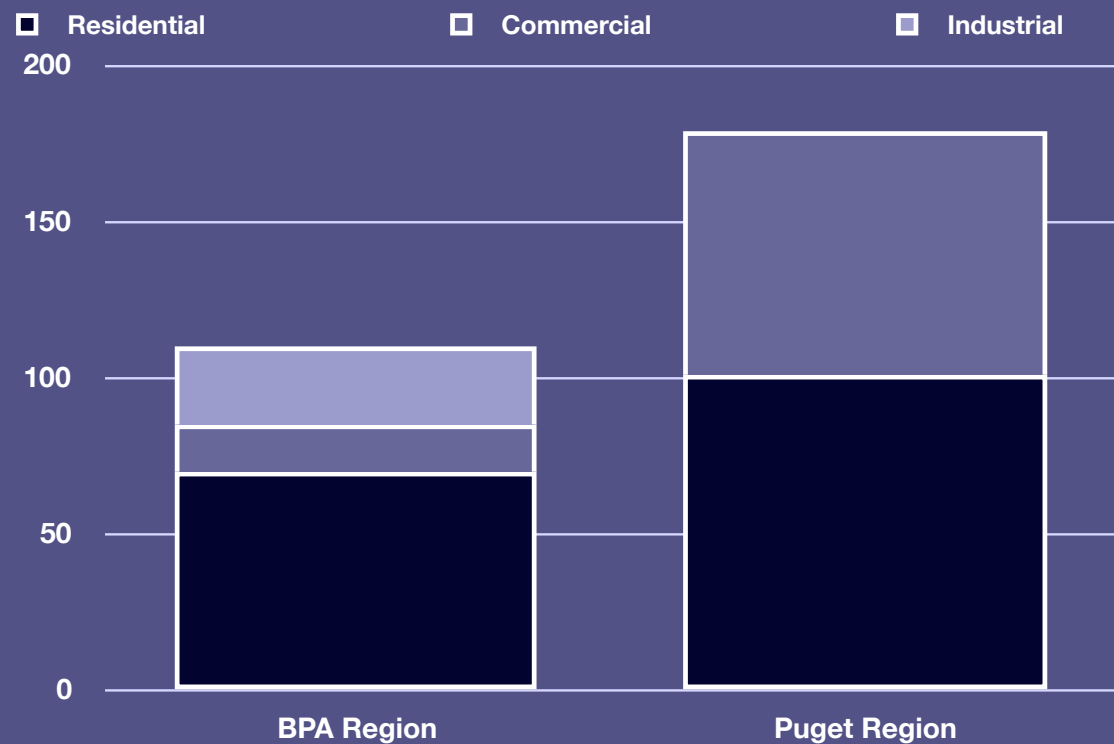
Maximum Achievable Potential (MW)



Aggressive Case

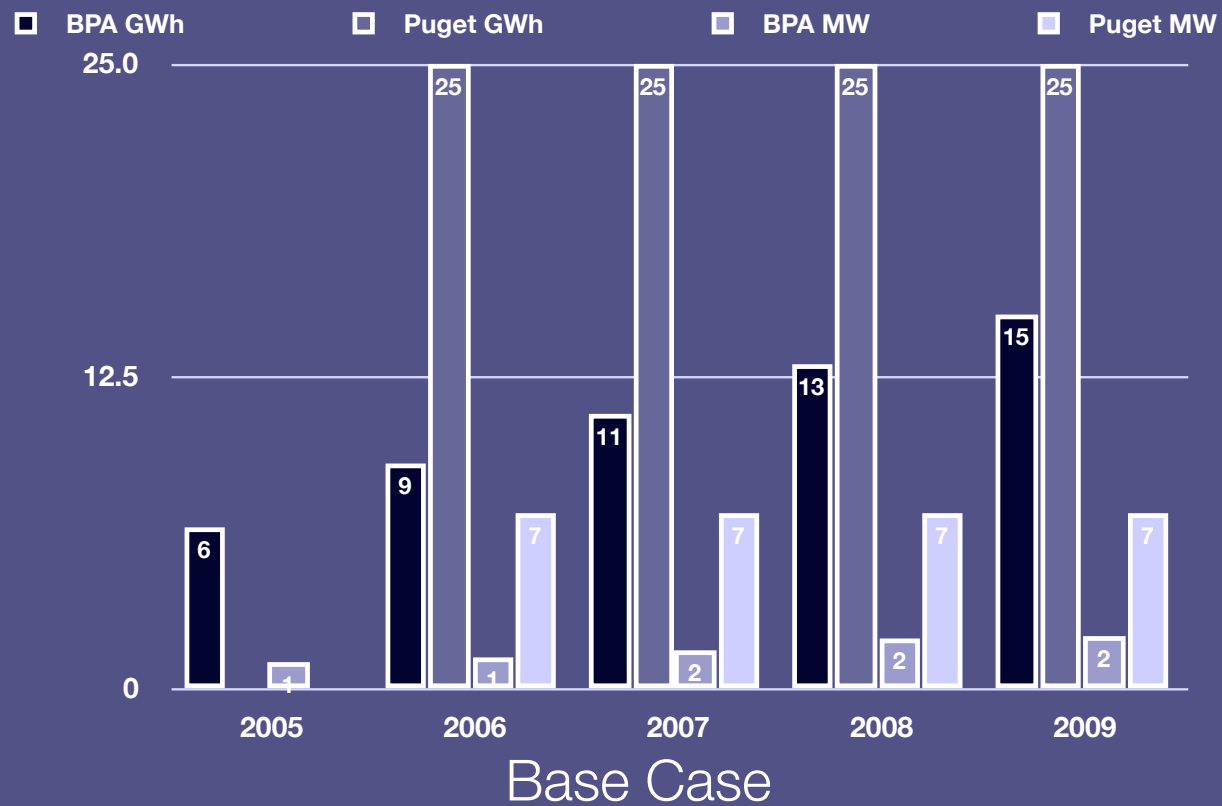
Energy Efficiency

Maximum Achievable Potential (GWh)

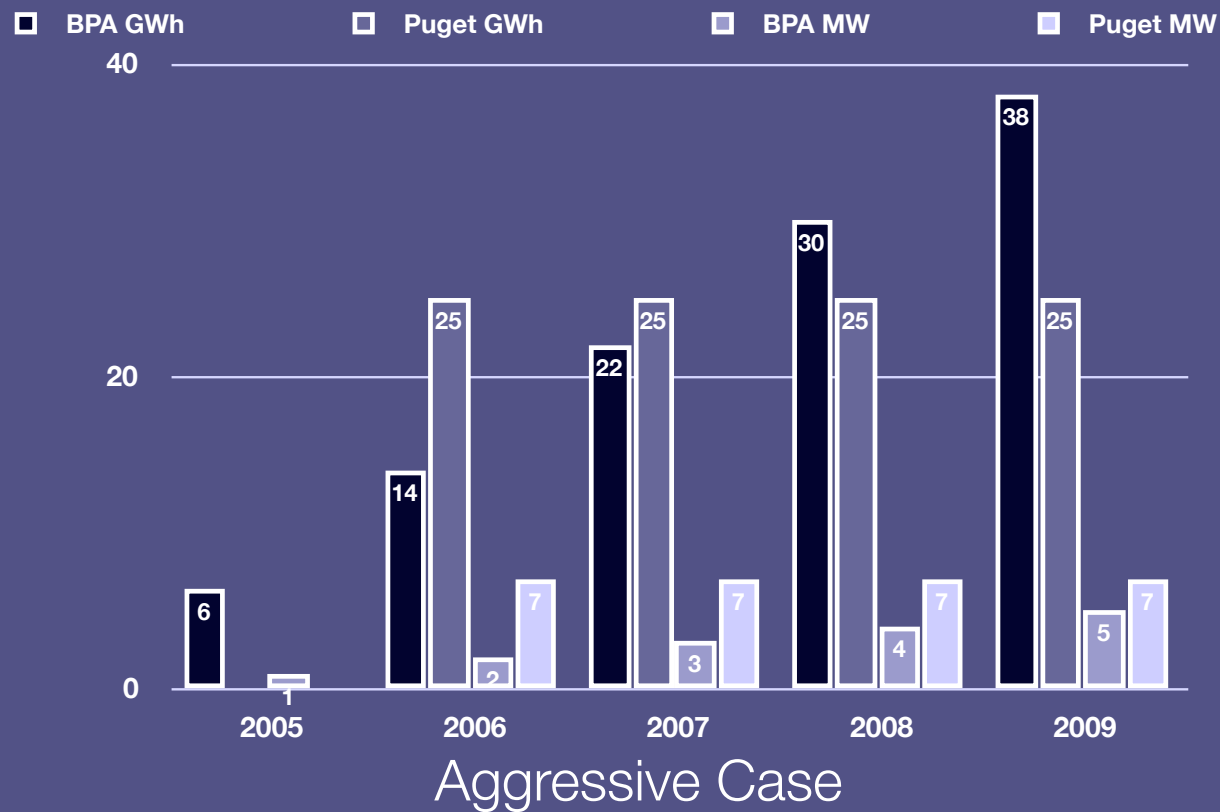


Aggressive Case

Annual Energy Efficiency Targets



Annual Energy Efficiency Targets





Conclusion

- ▶ 5 year transmission deferral need: ~50MW
- ▶ Identified measures and potentials: ~55MW
- ▶ Reliability insurance (extra could achieve in BPA area): ~18MW
 - DR: ~15MW
 - DG: ~3
- ▶ PSE could contribute additional through DG & EE: ~20MW
- ▶ TBL NWS portfolio costs less than avoided cost of transmission